Dendrimer-doxorubicin conjugate as enzyme-sensitive and polymeric nanoscale drug delivery vehicle for ovarian cancer therapy

Electronic Supplementary Information

Chengyuan Zhang, Dayi Pan, Kui Luo,* Ning Li, Chunhua Guo, Xiuli Zheng and Zhongwei Gu*

*National Engineering Research Center for Biomaterials, Sichuan University, Chengdu 610064, China
E–mail addresses: zwgu@scu.edu.cn (Z. Gu), luokui@scu.edu.cn (K. Luo).
*Corresponding authors. Gu is to be contacted at Tel.: +86 28 85410336; fax: +86 28 85410653. Luo, Tel./fax: +86 28 85410653.

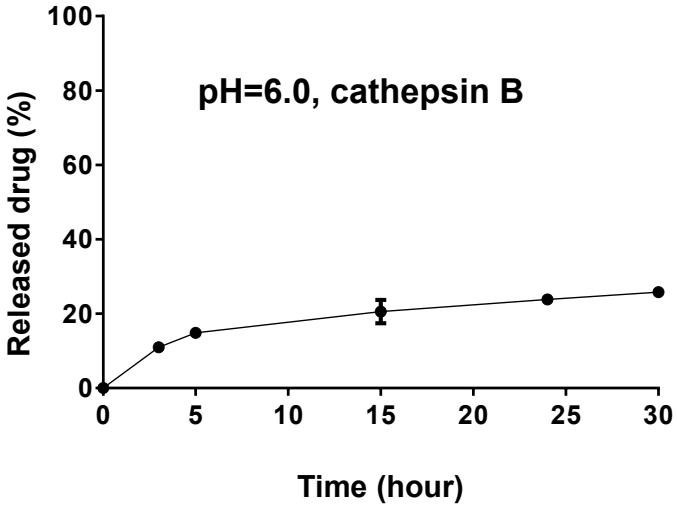

Fig. S1 The release of free DOX from the dendrimer-DOX conjugate was performed at pH 6.0, 37 °C in the presence of cathepsin B (5.6 μM) with concentration of conjugate 3 mg/mL. At predetermined time points (3 h, 5 h, 15 h, 24 h, 30 h), 80 μL sample was withdrawn and analyzed by RP-HPLC. The release drug DOX concentration at different time points was measured using RP-HPLC (Agilent Technologies 1100 series, Zorbax C8 column 4.6×150 mm) with gradient elution from 2 to 90% of Buffer B within 20 min and flow rate 1.0 mL/min (Buffer A: deionized water with 0.1% TFA, Buffer B: acetonitrile containing 0.1% TFA). For the nanoparticles in buffer without enzmye cathepsin B, no released DOX was observed by HPLC.

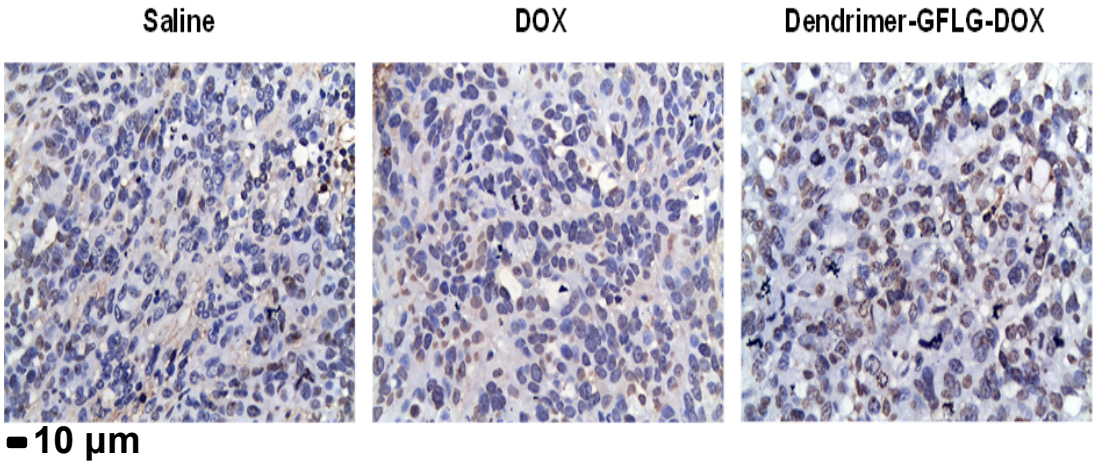

Fig. S2 TUNEL immunohistochemical (IHC) staining of tumor tissues. The brown areas indicate TUNEL-positive staining. Representative photomicrographs of SKOV-3 tumors harvested at the end of study, from mice receiving various treatment with physiological saline as control (Saline), free drug DOX (DOX), and mPEGylated dendrimer-DOX conjugate based nanoparticle (Dendrimer-GFLG-DOX).

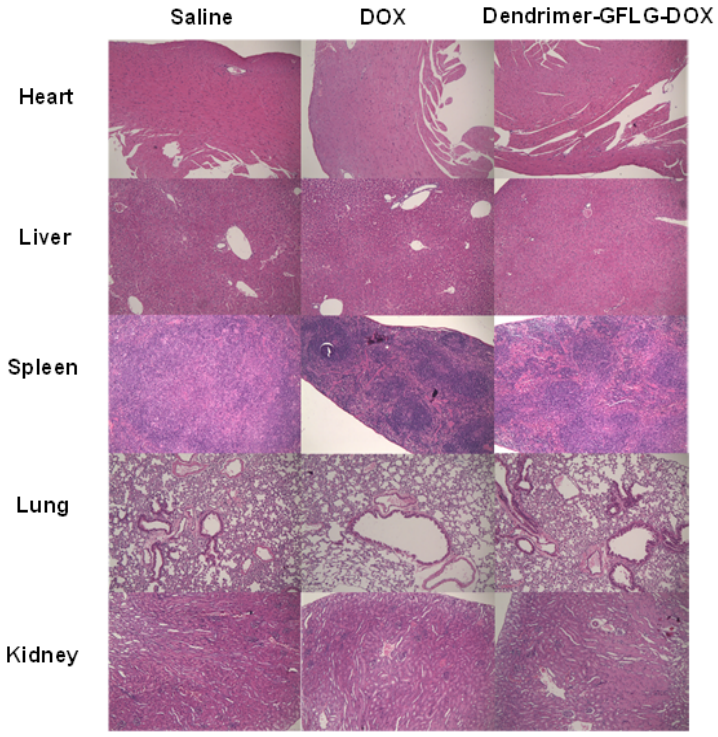

Fig. S3 Histological analysis for different organs of tumor bearing mice administrated control (Saline), free drug DOX (DOX) and mPEGylated dendrimer-GFLG-DOX conjugate based nanoparticle (Dendrimer-GFLG-DOX) (all tissues: ×100). No signs of toxicity were observed from each treatment group.